

REMARKS/ARGUMENTS

This is a response to the Office Action of 15 November 2007. Reconsideration of this patent application is requested.

The undersigned grants the United States Patent and Trademark Office the right to charge Air Products' Deposit Account Number 01-0493 for any additional fees or overpayment of fees required in furtherance of this paper.

Status of the Claims

Claims 1-14 are pending in the application.

Claims 1-14 are rejected.

Claims 1-3, 7-10 and 14 are hereby canceled.

Amendments to the Claims:

Claims 1-3, 7-10 and 14 are canceled.

Claim 4 has been amended. Claim 4 originally depended from Claim 1. Claim 4 has been rewritten in independent form, including all of the limitations set forth in original claim 1. No new matter is added by this amendment to claim 4.

Claim 6 has been amended to depend from claim 4 instead of canceled claim 1. No new matter is added by this amendment to claim 6.

Claim 11 has been amended. Claim 11 originally depended from claim 10. Claim 11 has been rewritten in independent form, including all of the limitations set forth in original claim 10. No new matter is added by this amendment to Claim 11.

Claim 12 has been amended. Claim 12 originally depended from claim 10. Claim 12 has been rewritten in independent form, including all of the limitations set forth in original claim 10. No new matter is added by this amendment to Claim 12.

Claim 13 has been amended to depend from claim 12 instead of canceled claim 10. No new matter is added by this amendment to claim 13.

The Claimed Invention

The present invention relates to a nozzle.

According to independent claim 4, the nozzle comprises:

(a) a nozzle body having an inlet face, an outlet face, and an inlet flow axis passing through the inlet and outlet faces; and

(b) two or more slots extending through the nozzle body from the inlet face to the outlet face, each slot having a slot axis;

wherein the slot axis of at least one of the slots is not parallel to the inlet flow axis of the nozzle body, and

wherein at least two of the slots intersect each other.

According to independent claim 11, the nozzle comprises:

(a) a nozzle body having an inlet face, an outlet face, and an inlet flow axis passing through the inlet and outlet faces; and

(b) two or more slots extending through the nozzle body from the inlet face to the outlet face, each slot having a slot axis and a slot center plane;

wherein a first slot of the two or more slots is intersected by each of the other slots and the slot center plane of at least one of the slots intersects the inlet flow axis of the nozzle body and

wherein the center plane of the first slot intersects the inlet flow axis at an included angle of between 0 and about 30 degrees.

According to independent claim 11, the nozzle comprises:

(a) a nozzle body having an inlet face, an outlet face, and an inlet flow axis passing through the inlet and outlet faces; and

(b) two or more slots extending through the nozzle body from the inlet face to the outlet face, each slot having a slot axis and a slot center plane;

wherein a first slot of the two or more slots is intersected by each of the other slots and the slot center plane of at least one of the slots intersects the inlet flow axis of the nozzle body and

wherein the center plane of any of the other slots intersects the inlet flow axis at an included angle of between 0 and about 30 degrees.

Claim Rejections – 35 USC §102

Claims 1, 3, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,098,896 to Haruch.

Claims 1, 3, 8 and 9 have been canceled, making the rejection of claims 1, 3, 8, and 9 moot.

Claims 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,664,733 to Lott.

Claim 10 has been canceled, making the rejection of claim 10 moot.

Applicants respectfully traverse the rejection of claims 11 and 12.

As to claim 11 and 12, the Examiner states that

“the Merriam-Webster Online defines intersect as: 1: to meet and cross at a point, or 2: to share a common area: overlap. By definition then, the center planes of any of the slots meet and cross the inflow axis at an angle of 0°.”

However, claim 11 requires that the center plane of the first slot intersects the inlet flow axis at an included angle of between 0 and about 30 degrees. An angle of 0° is excluded from the claim. The Examiner has failed to make a showing that Lott anticipates Claim 11.

Likewise, claim 12 requires that the center plane of any of the other slots intersects the inlet flow axis at an included angle of between 0 and about 30 degrees. An angle of 0° is

excluded from the claim. The Examiner has failed to make a showing that Lott anticipates Claim 12.

Applicants respectfully request that the Examiner withdraw the rejection of Claims 11 and 12.

Claim Rejections – 35 USC §103

Claims 4-6 are rejected under U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,098,896 to Haruch in view of U.S. Patent No. 5,664,733 to Lott.

Applicants respectfully traverse the rejection of Claims 4-6.

The Examiner suggests that the reason for combining Haruch and Lott is in order to customize a spraying pattern.

The nozzle of Haruch is a spray nozzle for producing a diverging spray or a converging spray or a substantially flat spray (see abstract).

The nozzle of Lott, on the other hand, is for providing improved fluid mixing of a first fluid and a second fluid (see abstract). The words “spray” or “spraying” do not appear in the disclosure of Lott. The nozzle of Lott is not for generating a spraying pattern at all.

There is no teaching, suggestion, motivation or reason for combining the disclosure of Haruch with the disclosure of Lott. The two different nozzles are for completely different purposes. The nozzle of Haruch is for spraying and atomization, while the nozzle of Lott is for mixing of two fluids (liquids).

Applicants respectfully submit that the Examiner has failed to establish a prima facie obviousness rejection of claims 4-6 in view of Haruch and Lott.

Applicants respectfully request the Examiner to withdraw the rejection of claims 4-6.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,664,733 to Lott.

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Applicants respectfully traverse the rejection of Claim 13. Applicants respectfully submit that the Examiner has failed to establish a prima facie obviousness rejection of claim 13 in view of Lott.

Amended claim 13 depends from claim 12. As discussed above for claim 12, Lott does not disclose that the center plane of any of the other slots intersects the inlet flow axis at an included angle of between 0 and about 30 degrees. Again, 0° is excluded from the claim. Mere duplication of the nozzle pattern of Lott in an axial direction would still not provide the required included angle of between 0 and about 30 degrees as required by claim 13.

Applicants respectfully request that the Examiner withdraw the rejection of Claim 13.

Prior Art of Record, Not Relied Upon by Examiner

Applicants acknowledge that U.S. Patent No. 6,315,221 to Goenka et al., and U.S. Patent No. 6,126,087 to Hedger et al. have been cited as prior art of record, but not relied upon by the Examiner, although considered pertinent by the Examiner to Applicants' disclosure.

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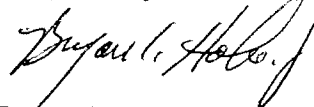
SUMMARY

Applicants believe that the foregoing constitutes a complete and full response to the Action of record. Applicants respectfully submit that this application is now in condition for allowance. Accordingly, an indication of allowability and an early Notice of Allowance are respectfully requested.

The undersigned grants the United States Patent and Trademark Office the right to charge Deposit Account Number 01-0493 in the name of Air Products and Chemicals, Inc. for any fees required and any additional fees or overpayment of fees required in furtherance of this paper.

For all of the foregoing reasons, Applicant respectfully requests withdrawal of the rejection of Claims 4-6, and 11-13, inclusive, and earnestly solicit a Notice of Allowance thereof.

Respectfully submitted,



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